Who says Canada needs a Mackenzie Valley gas pipeline?

POLAR
PAM
4270

POLARPAM

More than 100 organizations have publicly advocated construction of a pipeline to transport natural gas from the Delta region of the Mackenzie River on the arctic coast.

They include municipal, provincial and territorial governments, labor unions, corporations, associations and others, located from Inuvik to Vancouver to Montreal.

The list is appended here.

Arguments in favor of early construction of the pipeline have been advanced primarily in public hearings before the National Energy Board and the Mackenzie Valley Pipeline Inquiry, headed by Mr. Justice Thomas Berger.

Of those who advocate a Mackenzie Valley gas pipeline, more than 30 specifically endorse the proposal of Arctic Gas, while only three have publicly endorsed the Maple Leaf system proposed by Foothills Pipe Lines.

Northern representatives, including the Legislative Assembly of the Northwest Territories, the N.W.T. Association of Municipalities, Chambers of Commerce and others, have urged approval of the pipeline as an important means of attaining regional social and economic objectives. (See separate paper, What do northerners say about this pipeline?)

Benefits which it is said the pipeline will provide Canada include a secure and economic source of energy, a reduction in the growing cost of oil imports, and stimulation of industrial activity and employment.

Proceed soon to avoid environmental and social costs

Proceeding with the pipeline in a timely fashion, it is argued, will avert the possibility of constructing it later on a crash program without careful regard to the environment and social costs.

Donald H. MacKay, Professor of Chemical Engineering and Associate Director of the Institute for Environmental Studies at the University of Toronto, told

the Berger hearings in Toronto that "it is imperative that we exploit the Arctic oil and gas soon."

"I am convinced that by the early to mid-1980's Canada could face a severe petroleum energy shortage," Professor MacKay said. "From the standpoint of energy needs alone, it is imperative that exploration proceed as fast as possible in the Mackenzie Delta and Beaufort Sea and that gas and oil pipelines be constructed at the earliest possible date.

". . . the longer the delay in proving reserves or constructing viable transportation systems, the more critical the national energy situation may become and the more likely it is that environmental and social factors will be disregarded. I'm thus in favor of early construction of the Canadian Arctic Gas pipeline . . .

"In the long-term, we must depend on renewable energy resources but there is simply no possibility of substantially decreasing our dependence on oil and gas in the next 10 to 15 years. The industrial and social consequences of a short-fall in oil and gas supply could be disasterous. I am convinced that it would be intolerable to proceed with these developments in an environmentally and socially damaging manner."

The Association of Professional Engineers, Geologists and Geophysicists of Alberta, and the *Canadian Chamber of Commerce*, advanced the same argument to Mr. Justice Berger.

Unless steps are taken soon, the engineers said, "an economic crisis of considerable proportion will develop due to an energy shortfall and . . . the impact of this crisis will be felt throughout Canada by all Canadians." They claimed that "proper solutions to environmental problems . . . and economic stability can be achieved by early commencement of the pipeline rather than awaiting the hasty and sometimes faulty decisions triggered by crisis conditions."

The Canadian Chamber of Commerce argues that "we can now plan properly to build the pipeline giving due consideration to the environmental concerns and the impact upon the people of the north." But delay "could lead to a decision to build the pipeline under emergency conditions without due regard for the environmental or social impact upon the North."

The need to proceed with the pipeline to meet the national need but in a manner that also meets the needs of northern Canada, was stressed by Sidbec-Dosco Limitee, the Quebec government-owned steel producer, in its presentation to the Berger hearings in Montreal, May, 1976.

". . . we must do everything we can to settle at once and concurrently the legitimate claims of the native populations, protect the environment and preserve the ecology . . . while at the same time recognizing and satisfying the aspirations and the needs of northern as well as southern Canada, without prejudice to either party," Sidbec stated.

Delivery of Delta gas supplies must be given urgent priority, the company stated, "but not at any cost. The urgency to protect the rights of southern and eastern Canadians must not blind us to the urgency of protecting the rights of the populations in the Northwest Territories and the Yukon. The price tag of protecting the rights of one group at the expense of others is politically unsound, the decision to listen to one group only is socially unacceptable, and the consequences of inaction are economically disasterous."

Sun Oil Company Limited has stated that "even if natural gas exports were eliminated immediately, deliverability would become inadequate to meet Canadian requirements sometime between 1983 and 1986."

Labor unions support Arctic Gas pipeline

The *Canadian Labor Congress* says that while more gas is needed, more debate is also needed to determine whether an arctic pipeline is the best way to meet this need. Neil Reimer, vice-president of the CLC and chairman of its energy committee, told Mr. Justice Berger that "having access to adequate sources of energy is vital to maintain our ability to create jobs and incomes in this country and all other factors which determine our current standard of living. On the basic question . . . of securing adequate sources of energy there should be little debate."

The United Association of Journeymen Apprentices of the Plumbing and Pipe Fitting Industry, with 36,000 union members in Canada, has urged approval of the Arctic Gas proposal in submissions to both the National Energy Board and the Berger Commission. J. R. St. Eloi told Justice Berger that the Arctic Gas pipeline is needed "to maintain the present consumption, without even considering the energy required to continue expanding Canadian industry." He said construction "should commence as early as possible for the economic benefit of the Canadian public." St. Eloi claims that if the U.S. were to proceed with the El Paso proposal for the movement of Alaskan North Slope gas "because of delays in obtaining approval from the Canadian Government, we are confident the objectives that the native people wish to achieve through negotiation for land claims will be vitally affected . . ." He said they will be "left with little or no" bargaining position.

The Building Trades Unions in Canada, with 400,000

members, told the Berger hearings that, in their view, "there is no viable alternative to the building of a pipeline."

"The most urgent consideration that must be given is to the Arctic Gas proposal," the union's brief stated. It claimed that a major benefit would be "revenue derived from transporting United States gas across Canadian territory, which can far more than cover the interest, dividends and debt repayment on the portion which is raised abroad."

The Building Trades brief says the pipeline "would encourage new exploration which otherwise would not be feasible," and would generate revenues which "could assist in resolving the aboriginal claims of northern Canadian natives."

"If a joint project (to carry both Alaskan and Delta gas) isn't developed, it doesn't seem logical to us that any project will be developed in the near future," James A. McCambly, executive secretary of the Building Trades, told Mr. Justice Berger.

Other unions which have endorsed construction of a Mackenzie Valley gas pipeline include the *International Brotherhood of Teamsters*, the *Operating Engineers*, and the *Laborers International Union of North America.*

Bank says need for pipeline "incontrovertible" and urgent

The Bank of Nova Scotia in its monthly review of June, 1976 drew attention to "the serious natural gas shortage which will confront Canadians unless urgent attention is given to securing frontier supplies of gas." Despite prospects for significant new gas reserves in Alberta and British Columbia, "indications are that it will be impossible to meet the country's on-going gas demands from these sources much beyond the mid-eighties even if consumption growth were to be moderated considerably and exports cut off." It claims that the need for arctic gas "is both incontrovertible and urgent, notwithstanding optimistic forecasts of cutbacks in consumption growth, and of additions to gas reserves in conventional producing areas."

The use of alternative sources of energy to defer the need for a gas pipeline from the arctic will present problems, according to the bank's letter.

". . . any replacement of gas by oil or coal will be at the expense of Canada's balance of payments since the country is no longer self-sufficient in oil and is not yet self-sufficient in coal," the bank stated. "Any replacement by oil will also be at the expense of security of energy supply.

". . . until a decision is made on whether a pipeline is to be built from the Mackenzie Delta, energy planning will be hamstrung in both the private and public sectors. If a pipeline is not approved and no arctic gas is forthcoming, major adjustments would eventually have to take place in Canadian energy consumption patterns . . . Other fuels would have to begin replacing natural gas in some uses in British Columbia and east of Alberta; Ontario and British Columbia in particular would have to live with the uncertainty of a growing dependence upon imported oil"

The Ontario Ministry of Energy, in May, 1976, told the Berger hearings that it is "preparing for the possibility of supply difficulties with respect to natural gas commencing in the next two to three years. This situation will end only with the connection of a significant new source of deliveries."

The Ontario Government has concluded that "the only proposal which has a threshold volume of reserves available to it at this time is the proposal to build a joint pipeline system from Prudhoe Bay in Alaska and Mackenzie Delta in the Northwest Territories."

New gas supplies needed "to keep Canadians working"

The Ministry pointed out that Ontario accounts for nearly half of the natural gas used in Canada, and that 60 percent of this is used for industrial applications. "In other words, we use the largest portion of natural gas not to keep us warm or to cook with, but to keep Canadians working."

The Industrial Gas Users Association has also pointed out the importance of adequate and assured gas supplies in maintaining industrial activity and employment.

IGUA estimates the 1976 gas purchases by its 14 member companies at $140 million, representing eight percent of the total gas used in Canada and 15 percent of the gas used by industry. In 1974, the IGUA member firms paid $553 million in wages and salaries to 35,000 employees and paid $817 million for the purchase of goods and services. "Assuming continued availability of gas, IGUA's Members intend to invest a further $660 million" in gas-using operations in Ontario and Quebec during the next two years.

"Downstream use of products produced in these operations is vital to the continued well-being of other industries dependent upon materials produced by IGUA members," the Association stated. "For example, the continued supply of ammonia-based fertilizers is of great importance to the agricultural and food industries."

"In Winnipeg, a severe natural gas shortage has existed for two years," the *City of Winnipeg* told the

Berger hearings on May 20. This has resulted in freezes in the attachment of new industrial and residential customers. The freezes were lifted in August, 1976, with the availability of some additional supplies from Alberta. But by then there was a backlog of 900 new commercial and industrial accounts, which will require an estimated two years to clear up, the City brief stated.

"New firms making applications for service today can be given no assurance that they will be accepted as customers in two years time," the City stated. "Commercial and industrial firms that are considering Winnipeg as a possible location for a plant or factory can be given no assurance that they will be accepted as natural gas customers at some time in the future."

". . . shortages of natural gas already are acting to slow the industrial growth of Winnipeg and have caused severe disruptions in the house-building industry. This situation can only worsen as Alberta gas supplies start to decline in terms of deliverability by the late 1970's or the early 1980's.

". . . The only long-range solution to the supply of natural gas with the necessary immediacy which is now available is natural gas from Mackenzie Delta by pipeline via the Mackenzie Valley."

"Security of supply would be seriously lacking if Canada were to become increasingly dependent upon foreign sources," the *Canadian Chamber of Commerce* pointed out in its brief to the Berger hearings. "Actions over which this country would have no control might lead to a curtailment of supply with serious effects upon our economy. Similarly, a second round of major price increases by the oil exporting countries could, under such circumstances, result in more serious economic problems than those experienced during the past few years."

"The only solution," according to the Chamber, "is to develop new sources of energy. In the medium term — the next 10 years — one of the most important proven sources which can make a major contribution to Canada's energy needs is the natural gas reserves located in the Mackenzie Delta . . . Canada needs those supplies of natural gas, and it needs them quickly."

Delay means higher costs

One effect of delaying construction of the pipeline would be increased costs, according to the *Board of Trade of Metropolitan Toronto*. "Even if inflation is slowed to five percent per year . . . the cost of this project would increase at a rate of approximately $1 million per day," the Board stated. "This increase must be reflected in higher transmission costs."

The need for additional gas supplies by various industries have been detailed in submissions to both the National Energy Board and the Berger Commission.

One example involves plans for the development of a large and unique deposit of low grade magnetic iron ore at Lake St. Joseph, 300 miles northwest of Thunder Bay in northern Ontario. It is believed to be the only iron ore deposit in central North America from which it is economically feasible to produce needed supplies of metallic iron — or sponge iron — for the electric furnaces of steel producers in Canada and the United States.

Since 1956, *Steep Rock Iron Mines Limited*, a Canadian-owned firm, has spent more than $3 million in preliminary development of this major ore deposit.

Planned production by Steep Rock at Lake St. Joseph involves a $450 million undertaking which would directly employ 800 during a production period of at least 30 years. Planned annual production includes three million tons of high grade oxide pellets and 800,000 tons of sponge iron. All of the sponge iron and 56 percent of the oxide pellets would be sold to Canadian steel mills, with the remainder exported to U.S. mills.

The planned Lake St. Joseph project requires an annual gas supply of 15 billion cubic feet, including 13 bcf to be used in the reduction process to produce sponge iron. In a submission to the National Energy Board, Steep Rock says that natural gas "is the only fuel that has been used in a commercially proven reduction process . . . Because natural gas is integral to the reduction process, it is therefore essential to the project that a sure, long-term source of its supply be guaranteed at a very early date as project financing cannot be committed until there is a sure source of suitable energy."

Sidbec-Dosco has testified that its planned expansion of steel producing operations in Quebec will require a major increase in natural gas use, from an annual rate of eight billion cubic feet in 1975 to 43 bcf in 1985.

Any delays in obtaining Mackenzie Delta gas supplies would have "a very negative impact on the economies of Sidbec" and Quebec, according to Sidbec manager of commodities and services purchases, Jean-Paul Perras. "Because natural gas is not interchangeable in our process, continuous, regular and guaranteed arrivals of natural gas are vital to Sidbec," M. Perras told the Berger hearings in Montreal. "Meaningful planning of Sidbec's activities and expansion require that all facts be on hand at least 10 years in advance. This is why any doubt about Sidbec's gas supplies during the eighties must be eliminated now."

The Steel Company of Canada requires natural gas in order to meet statutory environmental standards, as a process fuel to avoid metallurgical contaminants in its steel, and in certain of its process units which have been designed to use gas exclusively and cannot be adapted to use alternate energy. Stelco is one of the largest industrial gas users, and based on current process practices, its demand for natural gas will double during the next 15 years, in step with a planned doubling of its steel making capacities.

The list of other industrial firms which have also told the Board that they have urgent need of natural gas supplies is lengthy.

Who says Canada needs a pipeline to transport natural gas from the Mackenzie Delta?

Here's the list:

Canadian Companies sponsoring Arctic Gas

* Alberta Natural Gas Company Limited, Calgary
* Canada Development Corporation, Vancouver
* Northern and Central Gas Corporation Limited, Toronto
* The Consumers' Gas Company, Toronto
* TransCanada PipeLines Limited, Toronto
* Union Gas Limited, Chatham
* Gulf Oil Canada Limited, Toronto
* Imperial Oil Limited, Toronto
* Shell Canada Limited, Toronto

Other Canadian Petroleum-related Companies

Canadian Utilities Limited, Edmonton
* Conventures Limited, Calgary
Dome Petroleum Limited, Calgary
* Gaz Metropolitain, Montreal
* Greater Winnipeg Gas Company, Winnipeg
* Inter-City Gas Limited, Winnipeg
Soquip, a Quebec Crown corporation
Sun Oil Company Limited, Toronto

Gas Consumers

The Industrial Gas Users' Association, Montreal
Abitibi Paper Company Limited, Toronto
The Algoma Steel Corporation, Sault Ste. Marie
Bestlands Investments Limited, Winnipeg
Canadian Industries Limited, Montreal
Canadian Pittsburgh Industries Limited, Toronto
Canadian Titanium Pigments Limited, Montreal
Central Plains Incorporated, Winnipeg
Dominion Glass Company Limited, Montreal
Dominion Malting Limited, Winnipeg
Domtar Limited, Toronto
Du Pont of Canada Limited, Montreal
* Falconbridge Nickel Mines Limited, Toronto
Inland Cement Industries Limited, Edmonton
Ladco Company Limited, Winnipeg
Motor Vehicle Manufacturers Association, Toronto
* Noranda Mines Limited, Toronto
* Pilkington Brothers (Canada) Limited, Toronto
Sidbec-Dosco Ltee, Montreal
Steel Company of Canada, Hamilton
* Steep Rock Iron Mines Limited, Atikokan, Ontario
Texasgulf Canada Limited, Toronto

Governments

City of Calgary
City of Winnipeg
* Government of Ontario
Government of Quebec

Labor Organizations

* Alberta and Northwest Territories Building Trades Council
Building Trades Unions in Canada (AFL-CIO)
International Brotherhood of Teamsters
The Operating Engineers
Laborers International Union of North America
* The United Association of Journeymen Apprentices of the Plumbing and Pipe Fitting Industry

Northern Organizations

Settlement of Coppermine, NWT
Cardinal Transportation, Inuvik
* Village of Fort Simpson, NWT Chamber of Commerce
Fort Simpson, NWT Chamber of Commerce
Legislative Assembly of the Northwest Territories
* Town of Hay River, NWT
* Town of Inuvik, NWT
Inuvik and District Chamber of Commerce
Settlement of Norman Wells, NWT
* Northwest Territories Association of Municipalities, Yellowknife
Northwest Territories Chamber of Commerce
Northwest Territories Chamber of Mines
* City of Yellowknife, NWT
Colin Alexander, Publisher, News of the North, Yellowknife
* Tom Butters, Publisher, The Drum, Inuvik
* Town of Fort Smith
* Town of Pine Point
Metis and Non-Status Native Association of the NWT

Other Organizations

Alberta Construction Association, Edmonton
Alberta Northwest Chamber of Mines, Oil and Resources, Edmonton
Alberta Road Builders Association, Edmonton
R. Angus Alberta Limited, Edmonton
Associated Engineering Services Limited, Edmonton
Association of Professional Engineers, Geologists and Geophysicists of Alberta, Edmonton
Bank of Nova Scotia, Toronto
Board of Trade of Metropolitan Toronto
Calgary Chamber of Commerce
Canadian Association of Oil Well Drilling Contractors, Calgary
Canadian Chamber of Commerce, Montreal
Canadian Council of Professional Engineers, Ottawa
Canadian Gas Association, Toronto
Canadian Petroleum Association, Calgary
Canadian Pipeline Advisory Council, Vancouver
Cansteel Corporation, Halifax
Chambre de Commerce du Quebec
Dalcour Engineering Limited, Edmonton
Dominion Bridge Company Limited, Calgary
Edmonton Chamber of Commerce
Foremost Industries Limited, Calgary
Prof. Eric Mountjoy, Dept. of Geological Sciences, McGill University, Montreal
National Citizens' Coalition, Toronto
* Ontario Natural Gas Association, Toronto
Pacific Western Airlines, Vancouver
Pipe Line Contractors Association of Canada, Vancouver
Regina Chamber of Commerce
Steel-Flo Industries Limited, Calgary
* Dr. Donald MacKay, Associate Director, Institute for Environmental Studies, University of Toronto
Vancouver Board of Trade
White Pass & Yukon Corp. Limited, Vancouver
Winnipeg Chamber of Commerce
Winnipeg Economic Development Board

*** endorses Arctic Gas pipeline**

Canadian Arctic Gas Pipeline Limited
November 1976

What do Northerners say about a Mackenzie Valley pipeline?

POLAR
PAM
4270

POLARPAM

The Mackenzie Valley Pipeline Inquiry, headed by Mr. Justice Thomas Berger, held 18 months of public hearings to consider evidence on proposals for the construction of a Mackenzie Valley gas pipeline, and to hear what northern residents had to say about the plans for a pipeline.

The hearings started in March, 1975, and, except for final arguments were completed in November, 1976.

Mr. Justice Berger spent a total of 302 days listening to the evidence of 1,700 witnesses during hearings at 35 northern communities and settlements, as well as holding hearings at 11 cities in southern Canada to hear the views of other Canadians. Transcripts of the testimony heard by Mr. Justice Berger embrace 277 volumes with more than 50,000 pages and an estimated 14 million words. Thousands of pages of additional prepared evidence were also filed with the Inquiry.

In addition, the National Energy Board, which is considering whether or not a Mackenzie Valley gas pipeline is required in the national interest of Canada, has held public hearings in Yellowknife, Inuvik and Whitehorse as part of its public inquiry process.

Not unexpectedly, the testimony of northern residents has not been unanimous.

Only a minority of those who testified were opposed to the construction of a Mackenzie Valley gas pipeline under any circumstances.

Many more expressed serious concerns about possible environmental, social and economic consequences.

Native organizations and native peoples were nearly unanimous on one point. Time and time again, they repeated strong opposition to the construction of a pipeline prior to the settlement of their land claims. Settlement of land claims was held essential to ensure adequate participation in the economic rewards of resource development, self-determination, and preservation of native culture and traditions. But some native people urged prompt pipeline approval to maintain employment and income opportunities.

The Metis Association of the NWT told the Berger Inquiry Nov. 19 that settlement of land claims is essential, that this settlement should precede construction of the pipeline, and that a pipeline will help provide the jobs and economic opportunities essential to northern native peoples.

The Metis comprise a major portion of the native peoples in the pipeline region.

For any region "to prosper requires economic development," Metis Association president Richard Hardy told Mr. Justice Berger. "We cannot now endorse or suggest an economic future which will in any way hinder or adversely affect such an economic state. We therefore look to the construction of the pipeline as one of the major economic projects which we wish to take part in."

" . . . if we as Metis people are to survive and continue to grow socially and culturally, we must first be economically and otherwise secure," Mr. Hardy said.

He said that "Metis people object strenuously" to suggestions of an idealized view of native society pursuing exclusively a hunting and trapping existence. "Life on the land is tough," Mr. Hardy said. "So tough that the majority of native people have left such life on the land to live in communities and have taken and accepted such things, services and commodities such as government-built houses, fuel oil stoves for their heat, electricity, and food from the stores . . . Metis people in communities and in large centres have come to depend on wages and small businesses for a living and look to that way of life in the future."

Perhaps typical of the types of concerns expressed by many native peoples was the statement to Mr. Justice Berger by James Wokie, an Inuit from Baillie Island, on March 7, 1975, when the hearings had barely started.

"The children going to school, going even to grade 12, and coming home, they don't know any more the way of the Inuit," Mr. Wokie stated. "They don't know how to talk, they don't know how to drive dog, they don't know to hunt, fish . . . I am afraid, after the experience of the DEW line, that there will be much suffering, after the construction, after the exploration . . . and the work of the oil company will arrive at the end. I am afraid that many of those people working in those places find themselves without work and with much grief and suffering when they try to live again according to our tradition and try to survive in our country."

Dr. John K. Stagger, professor of Geography at the University of British Columbia, noted that "life in the bush and on the coast is extremely hard physically, is lacking in comfort, and the monetary returns from fur trapping are not as dependable and . . . are frequently

meagre. It is not surprising that young people turn to wage employment."

Dr. Stagger warned that "the leaders of native societies nowadays are not prepared to accept the thesis that they must choose either between bush or wages."

Thomas Espie, Director of Economic Development with the Government of the Northwest Territories, warned that if native people are "excluded from playing any real role in the economy, a high price will be paid in classic social alienation manifesting itself in such pathologies as alcoholism, crime, disruptive family life and . . . mental disturbance."

Dr. Charles W. Hobart, professor of Sociology at the University of Alberta, said that as a result of planned development and government programs, many native people "become dependent on the government for welfare money . . . housing, fuel oil, water, electricity . . . and often for jobs as well. The consequence . . . has undoubtedly been that many people are alive today who would not have survived without them, but the result has been increased dependency" and a "massive devaluation of things native." This has led, Hobart said, to "a loss of respect of worthiness by the native people, both in the eyes of the white and in their own eyes."

Native leaders have made it clear that they are not prepared to tolerate a continuation of this dependency role.

". . . there's no way the people up here can survive if the Federal Government or the oil companies go ahead and build that pipeline without giving the Dene people in the Territories the right to decide for themselves the things concerning their lives," Gerry Cheezie, chief of the Fort Smith and Fitz Indian band told Mr. Justice Berger.

"The kind of things that we want to see as important to our survival is being totally disregarded by going ahead and building the pipeline. I don't see any way at all that the pipeline can help towards the betterment of the natives in the Territories. If anything at all, it's going to destroy them . . . we want to see a land claims settlement before the pipeline goes ahead because there's no way that we can participate in it as equal partners if that don't happen."

Demands for control of northern lands and the activities on these lands have been repeated in statements by native leaders, such as that by John T'Seleie, director of the community development program for the NWT Indian Brotherhood, before the Berger hearings. "The only way that the Dene can collectively join the money economy is through co-operative developments, that have as their base the renewable resources of the land," Mr. T'Seleie said. "In order to pursue our objectives in renewable resource development we must have the right to control all non-renewable resources development."

And there have been threats of violence. "As long as the Dene blood flows in this land, this pipeline will be built only with our consent, or it will flow red to the south," Raymond Yakeleya told the Berger hearings in Norman Wells.

"That gas and oil, that's ours . . . The land settlement of 450,000 square miles; that is our land, and realize it . . . If the pipeline is built, at least half of the production must remain in the economic control of the Dene people . . . don't offer me a cut rate on natural gas and don't offer me a few jobs. I want my people to have at least half (of the revenue) to determine their own destiny, socially and economically . . .

"For so long the Indian people have been regarded as outcasts in our own land, and many times we're made to feel ashamed . . . For too long the Indian has been in the dirt. He was thrown down, he was kicked, he was always reminded that he was nothing but dirt in white society, and that was his place . . . We, the Dene people, we're tired of having people do things for us."

Common aspirations

But native and white people do not differ greatly in what they want, according to Harold Cardinal, president of the Indian Association of Alberta. "I think Indians and white people have similar goals in terms of what they want to achieve for their children," Mr. Cardinal said at the hearings. "There is no family, Indian or white, that does not want to see a better home, a better lifestyle, and more success for their children than perhaps they as parents experienced during the course of their lifetime."

Mr. Cardinal asked: "How do we share what we own as Canadians living in this land? . . . How do we control our lives? To what extent do we balance off our own interest in terms of survival along with the interests of the larger society?"

For at least the native people of Coppermine, an Inuit village east of the Delta where Gulf Oil Canada operates a program employing native people in exploration activity, development and wage income have helped secure the things that Mr. Cardinal says everyone wants, without disrupting traditional native ways.

Four native people from Coppermine apeared before Mr. Justice Berger in Inuvik to urge that development not be deferred.

"If no development goes in the north, it will be very sad to many of us," said Lena Pederson, former member of the NWT Legislative Assembly for the Coppermine area. "What is the future for our children? Do we expect that these children have to go somewhere

else to look for the jobs, or do we expect that many small communities will be closed down because of no development?"

Red Pederson, chairman of the Coppermine settlement council, said the employment program has been "generally most beneficial . . . I do not know of any local complaints." He said that "the employment has not interfered with the traditional living off the land," and in fact, because it has allowed native people to buy new skidoos, boats and other equipment, it has improved the harvest of traditional resources of the land. Coppermine people still hunt for much of their food, and the take of furs in the past two years has been greater than in any period since Coppermine was established as a trading centre in 1928.

Bill Lafferty, a member of the N.W.T. Legislative Assembly and a Metis, also sees benefits in development. As he told the Berger Inquiry in Fort Simpson, "I personally see a great potential (for the north) in the pipeline."

Living off the land offers secondary income for most

Living off the land is a preferred alternative to wage employment for some native peoples, and many more still rely on hunting, fishing and trapping as supplementary activities. But wage employment opportunities are increasingly vital.

"Almost every researcher who has seriously studied the situation of native people in the north . . . has described their increasing disinterest in trapping and their increasingly expressed preference for wage employment," according to Dr. Hobart.

In the Mackenzie Valley district during the 1972-73 season, a total of 880 trappers received an average of $576 in fur sales, and only 110 earned more than $1,000, J. R. Witty, head of the employment division in the NWT Government's Department of Economic Development, told the Berger hearing. "Most people maintain themselves by some other means with trapping supplementing this means," Mr. Witty stated.

The desire of native peoples for wage employment opportunities appears to be confirmed by the response to the employment opportunities that do exist.

Direct employment of northerners, mostly native peoples, by the petroleum industry involved 761 people from 26 settlements who worked a total of 2,350 man-months during the year end April 30, 1975, Bruce Sider of the Petroleum Industry Committee on Employment of Northern Residents testified at the hearings.

An additional 100 native peoples are employed in full-time training positions in the Nortran program, sponsored by Arctic Gas and five other pipeline and petroleum companies.

In operation since 1971, the Nortran program provides training in exploration, production, pipeline and processing operations, and employees are assured of continuing employment opportunity whether a pipeline is built or not. The program would be greatly expanded once a pipeline has been approved, and an additional 400 northerners have already applied for positions with Nortran.

"Many notherners, particularly natives, are assuming more responsible positions each year and in fact, the industry is optimistic that with experience and training, northern residents will ultimately staff the major manpower requirements of the various companies in their northern operations at all levels of the organization," Mr. Sider testified.

The NWT Government now operates an apprenticeship training program which provides certification in 36 different trades. There are now 400 indentured apprentices in the Northwest Territories, and 127 native people have so far obtained journeyman certification under this program, Mr. Witty told Justice Berger on October 14, 1976.

Moratorium would aggravate intolerable unemployment rate

But the need for more employment opportunities in the north is urgent.

"With the exception of certain pockets, there is no equality of opportunity because employment simply does not exist," Mr. Witty testified. He estimated that only nine communities in the NWT with a combined population of 20,251 out of 67 communities with a total population of 45,488 "cold be considered to have a substantial economic base outside of government."

This means, he said, "that the majority of the . . . population is supported by some form of government funding. Jobs are limited, and in relation to population growth, are becoming even more scarce."

Mr. Witty estimated the potential labor force in the Northwest Territories at 17,000 increasing at a rate of 1,000 every year, compared with an estimated 10,000 to 12,000 jobs now available.

He reported that a study in March, 1976, showed that in Aklavik, with a population of 700, there were 126 people working (including permanent, seasonal and casual jobs and those living off the land), with 79 people or 38 percent out of work and "actively seeking employment." In Fort McPherson, with a population of 817, there were 148 people working and 129, or 46 percent, out of work and seeking employment.

He said there is "a very real need for employment creation," and that a 10-year moratorium on pipeline construction "can only aggravate an already intolerable rate of unemployment."

The employment problem could become more acute because of the exceptionally large number of young northerners entering the labor force. Dr. Hobart estimates that "about half the current native population is no more than 15 years of age," and R. M. Hill testifying for the Association of Municipalities, estimated that no less than 40 percent of the population is presently in school. Inuvik Mayor Jim Robertson estimated that 2,200 high school students will graduate between 1975 and 1978, representing a 12 percent increase in the labor force.

"Unless job opportunities increase in the NWT," Mr. Witty said, those now in school will "have only two choices: relocate to southern Canada or live on welfare."

"To design opportunities for a self-reliance in a totally government economy is to admit that the people of the Northwest Territories must always be the recipients of our nation's largesse but never contributors to the well being of the nation," he said. "It seems to me that if, as a nation, we are not prepared to make available to the people of the north the same opportunities that are available to any Canadian in the urban centres of our country . . . then . . . we have failed."

Development of petroleum resources is widely seen as a means to not only help alleviate employment problems, but to help make the Northwest Territories economically self-reliant and politically independent.

More than 80 percent of the revenues of the Government of the Northwest Territories are provided by the federal government. In the 1975-76 fiscal year, this amounted to $196 million, or $4,500 per capita — three times the per capita budget of the Alberta government. Including other expenditures, total federal government spending in the Northwest Territories was reported to amount to $7,820 per capita, or $39,000 for an average family of five. Welfare payments in 1973 amounted to $1,832 per capita in the Northwest Territories, compared with $204 in the provinces.

"If there was no resource development in the foreseeable future, I cannot see the federal government continuing this largesse into the north," R. M. Hill of Inuvik told the National Energy Board in Inuvik on behalf of the Northwest Territories Chamber of Commerce. He said this "is money to provide the basic infrastructure of education, hospitals, transportation and social services. It would either be cut off or severely restricted."

David Searle, speaker of the Legislative Assembly of the Northwest Territories told the NEB in Yellowknife "A large infusion of outside capital and the promotion of local activity of the kind expected to be associated with the construction of a gas pipeline appears to be the only immediately foreseeable means of supplying the quantity of employment and entrepreneurial opportunities needed if the Territories are to continue on their hoped-for course of economic, social and political development."

"The possibility of royalty revenue would allow us a better lever to move the federal government from the position they have maintained; that the Northwest Territories is not viable economically as a province," according to Yellowknife Mayor Fred Henne.

"We need self-determination," Mayor Henne told the NEB.

"We need self-government. We need equal rights. We want to have equal opportunity for all people in the North. We want to protect our ecology. We want to protect our way of life. We want to be able to work . . . Controlled development of a pipeline is compatible with these goals, and in some ways necessary for them. I think we should get on with building it."

"Early construction of a Mackenzie Valley gas pipeline would yield a net positive benefit for the political, social and economic development of the municipalities in the Mackenzie District," Inuvik Mayor Jim Robertson said on behalf of the NWT Association of Municipalities. ". . . we feel that the Canadian Arctic Gas Pipeline Ltd. proposal would provide the greatest net benefit to the residents of the Northwest Territories municipalities within the shortest period of time."

Pluralistic society requires wide range of opportunity

"There is a pluralistic society in most of the communities in the Northwest Territories," according to Mr. Hill. "Some residents are interested in hunting and trapping, others are interested in wage employment and business. Some are interested in both. Some want to continue living in traditional ways while others prefer to modernize. Some want a formal education while others prefer to learn by doing. Some want regulations to protect their freedoms, while others want freedom from regulations. A flexible form of community government is required to accommodate the differences for the mutual benefit of the majority and the protection of the minority."

Mr. Hill claimed that "the key to future self-government in the Northwest Territories is financial control . . . An independent source of income, such as a negotiated share of resource taxes and royalties, in order to develop effective self-government ... is required."

"Most northern residents want to have equality of opportunity and freedom to earn a decent living from the activities of their choice," he said. "Unless there is continuing progress, northern opportunities will be limited and community viability will be in jeopardy."

Colin Alexander, publisher of the News of the North, Yellowknife, summed up his 15 years of observations in the North for Mr. Justice Berger with these words:

". . . what native people really want is to be equipped with the training, education and above all, self-confidence so that they can aspire to the highest positions in our society.

"I do not believe that native people are all against development as such . . . I believe that they are against — strongly against — the kind of development which shunts them aside so that they become . . . surplus to the requirements of society. That we have seen in southern Canada and that we have the opportunity to avoid in northern Canada . . ."

"Land ownership does not provide self-sufficiency unless it is accompanied by capital investment, by employment opportunities, and the building of a society where there is purpose to life, which is so sadly lacking among many communities in the north."

"It is not realistic to think in terms of the southern Canadian taxpayer supporting native people in northern Canada in perpetuity; nor indeed do the majority of native people like living like that. They require training, education to participate in the opportunities which are opening up.

". . . unless there is a parallel development of people along with some form of economic development, yes, we are looking at blowing up pipelines, civil war, all those kind of things which native people with their frustrations are threatening. They have grievances, really serious grievances, which we have to acknowledge and do something about. But no growth, no jobs, no development, is no way to solve those problems."

"The prospects that the pipeline provides for substantial employment is the most important current prospect for salvaging the self-concepts of native people," according to Dr. Hobart who testified at the Berger Inquiry as a witness for Arctic Gas.

The pipeline "should provide the opportunity for the native to become reasonably, prosperously self-sufficient and to prove to all that with comparable training, he is just as good as the white man . . . that in the north, he is better," he said. "The only alternative to this would be to try to maintain northern peoples and northern communities as some kind of 'museum piece' and no one wants that . . ."

"The pipeline would make massively available" the opportunities to resolve problems related to dependency, welfare, and the need for employment and self-sufficiency, Dr. Hobart testified.

"The beauty of the situation is that there is no need to opt for an either/or choice . . . it is possible to . . . simultaneously provide for increased development and increased utilization of the renewable resources of the land . . . return to increased living off the land is possible for those who would prefer it . . . But development is also clearly needed to permit the many native people who would prefer a more wage and salary oriented lifestyle which involves easy access to the land and to the bounty of fish and game the land offers, to enjoy this way of living as well. The dilemma and the opportunity . . . is to ensure that opportunities for living on the land, and for development are both safeguarded, and that the safeguards of each do not undercut the viability of the other."

Canadian Arctic Gas Pipeline Limited
November, 1976

Instead of an Arctic Pipeline, why not use less energy? Or renewable energy?

POLAR
PAM
4270

POLARPAM

Sound conservation measures to limit energy demand growth, and development of renewable sources of energy, are both essential to provide the energy that Canadians require.

"Energy conservation provides the most immediate method of relieving our energy problems and constitutes the lowest-cost lowest-risk policy by which energy self-reliance can be enhanced," according to the Federal Government's Energy Strategy for Canada.

Over the longer-term, it will be necessary to shift to virtually limitless energy sources (such as fast breeder nuclear reactors) and renewable sources of energy (solar, wind, geothermal, biomas and tidal power).

Of themselves, however, neither energy conservation nor renewable sources are capable of satisfying our energy requirements during the near term.

Declining production of oil and natural gas from the western provinces, can't be offset during the next couple of decades by conservation and renewable forms of energy, except at severe social and economic costs and drastic changes to our life-styles.

The rate of daily Canadian oil production, for example, has declined by more than 250,000 barrels during the past three years, to a 1976 rate of 1,450,000 barrels. As a result, net oil imports in 1976 are estimated at 250,000 barrels per day, at a cost of some $1.25 billion. Even with anticipated development of the Athabasca oil sands, production from western Canada will decline further, to an expected rate of about 1.2 million barrels per day by 1985.

Meanwhile, even with conservation, Canada will still require increasing volumes of energy to ensure employment for a growing labor force, and meet economic, social and environmental objectives.

During the past 15 years, energy demand has increased at an annual rate of 5.5 percent. The national objective is to reduce this demand growth to an annual rate of 3.5 percent.

If oil demand growth is limited to an annual rate of 3.5 percent, required net oil imports in 1985 would be in the order of 1.2 million barrels per day, or half of Canada's oil demand, at an annual import cost of more than $5 billion, based on present world oil prices.

A study by F. H. Knelman for the Science Council of Canada suggests that it might be technically and economically feasible to reduce energy demand growth during the next 15 years to an annual rate as low as two percent. A two percent demand growth would still result in a 1985 shortfall in domestic oil supplies of some 800,000 barrels per day, which could cost about $3.7 billion to meet with imported oil.

Even a zero rate of demand growth would still result in a 1985 shortfall in domestic oil supplies from western Canada in the order of half a million barrels every day, which would cost some $2.5 billion to meet with imported oil.

While oil production rates from western Canada are already declining, natural gas production rates will inevitably follow the same trend, and this is generally anticipated in the very early 1980's. Natural gas provides one-quarter of the energy used in Canada, and shortfalls in gas supplies would compound the shortfall in domestic oil supplies. On the other hand, use of gas can reduce the shortfall in oil supplies.

While development of renewable forms of energy such as solar, wind, geothermal and tidal power is essential, "such alternative energy sources can contribute little in terms of total energy supply over the next fifteen years," according to An Energy Strategy for Canada. A preliminary study for the Department of Energy Mines and Resources estimates that such forms of energy might provide 3-6% of Canada's primary energy needs by the year 1990. ". . . the premature replacement of hydrocarbon energy by higher-cost alternatives could impose unnecessary burdens on Canadians," the government's Energy Strategy paper concludes.

It seems inevitable that Canada must either develop new sources of domestic oil and gas production to replace declining output from the western provinces, or pay for increasing oil imports during the next few decades.

Natural gas from the Mackenzie Delta can provide a larger, earlier, lower-cost source of additional hydrocarbon energy than any presently available alternative.

Canadian Arctic Gas Pipeline Limited
November, 1976

Instead of an Arctic Pipeline, why not use less energy? Or renewable energy?

POLAR
PAM
4270

POLARPAM

Sound conservation measures to limit energy demand growth, and development of renewable sources of energy, are both essential to provide the energy that Canadians require.

"Energy conservation provides the most immediate method of relieving our energy problems and constitutes the lowest-cost lowest-risk policy by which energy self-reliance can be enhanced," according to the Federal Government's Energy Strategy for Canada.

Over the longer-term, it will be necessary to shift to virtually limitless energy sources (such as fast breeder nuclear reactors) and renewable sources of energy (solar, wind, geothermal, biomas and tidal power).

Of themselves, however, neither energy conservation nor renewable sources are capable of satisfying our energy requirements during the near term.

Declining production of oil and natural gas from the western provinces, can't be offset during the next couple of decades by conservation and renewable forms of energy, except at severe social and economic costs and drastic changes to our life-styles.

The rate of daily Canadian oil production, for example, has declined by more than 250,000 barrels during the past three years, to a 1976 rate of 1,450,000 barrels. As a result, net oil imports in 1976 are estimated at 250,000 barrels per day, at a cost of some $1.25 billion. Even with anticipated development of the Athabasca oil sands, production from western Canada will decline further, to an expected rate of about 1.2 million barrels per day by 1985.

Meanwhile, even with conservation, Canada will still require increasing volumes of energy to ensure employment for a growing labor force, and meet economic, social and environmental objectives.

During the past 15 years, energy demand has increased at an annual rate of 5.5 percent. The national objective is to reduce this demand growth to an annual rate of 3.5 percent.

If oil demand growth is limited to an annual rate of 3.5 percent, required net oil imports in 1985 would be in the order of 1.2 million barrels per day, or half of Canada's oil demand, at an annual import cost of more than $5 billion, based on present world oil prices.

A study by F. H. Knelman for the Science Council of Canada suggests that it might be technically and economically feasible to reduce energy demand growth during the next 15 years to an annual rate as low as two percent. A two percent demand growth would still result in a 1985 shortfall in domestic oil supplies of some 800,000 barrels per day, which could cost about $3.7 billion to meet with imported oil.

Even a zero rate of demand growth would still result in a 1985 shortfall in domestic oil supplies from western Canada in the order of half a million barrels every day, which would cost some $2.5 billion to meet with imported oil.

While oil production rates from western Canada are already declining, natural gas production rates will inevitably follow the same trend, and this is generally anticipated in the very early 1980's. Natural gas provides one-quarter of the energy used in Canada, and shortfalls in gas supplies would compound the shortfall in domestic oil supplies. On the other hand, use of gas can reduce the shortfall in oil supplies.

While development of renewable forms of energy such as solar, wind, geothermal and tidal power is essential, "such alternative energy sources can contribute little in terms of total energy supply over the next fifteen years," according to An Energy Strategy for Canada. A preliminary study for the Department of Energy Mines and Resources estimates that such forms of energy might provide 3-6% of Canada's primary energy needs by the year 1990. ". . . the premature replacement of hydrocarbon energy by higher-cost alternatives could impose unnecessary burdens on Canadians," the government's Energy Strategy paper concludes.

It seems inevitable that Canada must either develop new sources of domestic oil and gas production to replace declining output from the western provinces, or pay for increasing oil imports during the next few decades.

Natural gas from the Mackenzie Delta can provide a larger, earlier, lower-cost source of additional hydrocarbon energy than any presently available alternative.

Canadian Arctic Gas Pipeline Limited
November, 1976

Can Canada afford the Arctic Gas Pipeline?

POLAR
PAM
4270

POLARPAM

It will cost billions of dollars to construct the pipeline proposed by Canadian Arctic Gas.

Some have suggested that Canada cannot afford to spend this money, that it would have adverse effects on the Canadian economy, and that it would limit funds available for other needs, including social requirements.

But the cost of providing Mackenzie Delta gas by means of the Arctic Gas pipeline represents a very small portion of the total investment that will be required during the next decade to provide the supplies of energy that Canada needs.

Moreover, the cost of providing equivalent alternative volumes of energy would be substantially greater.

Thus, the Arctic Gas pipeline would reduce the expenditures which Canadians must otherwise make to secure necessary energy supplies. And the effect of this savings would be to make more money available to meet other needs.

The Canadian Arctic Gas Pipeline will cost an estimated $7.4 billion to build, with an initial capacity of 3.25 billion cubic feet of gas per day. An additional $1 billion generated from operating revenues will be used to increase capacity to 4.5 bcf/d.

At full design capacity, it is expected that U.S. gas from the North Slope of Alaska would account for half of the gas transported through the pipeline.

Thus Canadian users would pay for less than half the cost of the pipeline, about $3.5 billion.

Other expenditures would include the cost of developing the gas fields for production, and expansion of other pipelines which would pick up the gas from the Arctic Gas pipeline for final delivery to Canadian consumers from Vancouver to Quebec. This might be as much as another $3.5 billion.

Total capital investment required to develop and transport Delta gas to Canadian users, after allowing for future cost escalation, is thus in the order of $7-$8 billion.

The federal government, in its 1976 paper "An Energy Strategy for Canada," estimated the total required investment for energy development at between $110 billion and $120 billion, in 1975 dollars, for the next 10-year period to 1986.

Allowing for the effects of inflation, the actual costs of the energy development envisioned in the government study would be substantially greater.

A more recent forecast by the Toronto Dominion Bank estimates required energy investment, including cost escalation, at $150 billion during the next 10 years.

The $7-$8 billion required for the development and transportation of Delta gas thus represents no more than five to seven percent of anticipated energy investment during the next decade.

In return, it could provide up to 15 percent of the new energy supplies anticipated during this period in the federal government's Energy Strategy paper.

The anticipated supply of Delta gas is equal to a daily volume of 400,000 barrels of oil. "An Energy Strategy for Canada" estimates that to provide electric energy equivalent to an oil supply of 200,000 barrels per day would require a capital investment of $40 billion, in constant 1975 dollars; five times as much for half the volume of daily energy.

The Delta gas supply would also equal the energy output of 3.5 Athabasca oil sands, for 70 percent of the capital investment, and substantially lower operating costs.

If imported oil were to be used as an alternative, a volume equivalent to the amount of Delta gas expected to be supplied over a 22-year period would cost the Canadian economy, at present oil import prices, some $20 billion more than the cost of providing Delta gas to serve the same energy need.

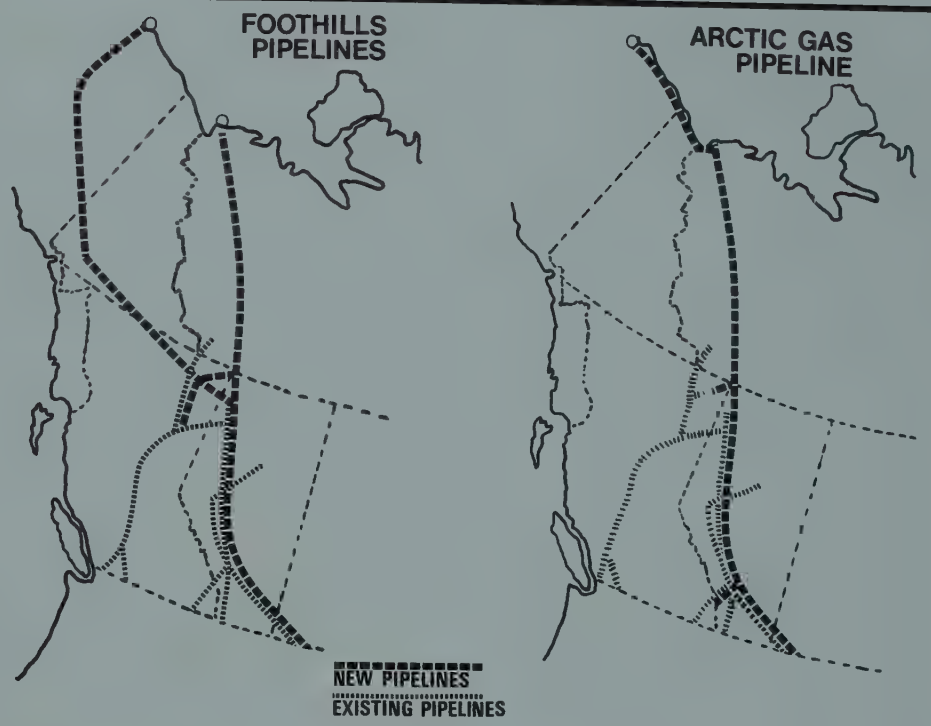
Canada can afford the Arctic Gas pipeline, because it is the least expensive way to provide an important part of the energy which Canadians require.

Canadian Arctic Gas Pipeline Limited
November 1976

How does the Arctic Gas Pipeline compare with other proposals?

POLAR
PAM
4270

POLARPAM



The alternative to building one transportation system for the movement of gas from both the Mackenzie Delta and the Alaskan North Slope, is to build separate transportation systems.

Separate transportation systems would increase the required capital investment by billions of dollars, and would add hundreds of millions of dollars to the annual cost of transporting the gas.

It would also delay the availability of Mackenzie Delta gas for Canadian users by an unknown number of years.

Separate pipelines for the transportation of Alaskan North Slope gas and Mackenzie Delta gas are proposed by Foothills Pipe Lines Ltd. and its partner, Northwest Pipeline Corporation of Salt Lake City, Utah. (Foothills, in turn, is sponsored by The Alberta Gas Trunk Line Company Limited and Westcoast Transmission Company Limited).

The systems proposed by Foothills include the Alaska highway pipeline to move gas from the North Slope of Alaska, and the Maple Leaf pipeline to transport natural gas from the Mackenzie Delta.

Routes of the proposed Foothills pipelines, as compared with the Arctic Gas system, are shown on the accompanying map.

The two Foothills systems would involve, as reported by Foothills, the construction of a total of 4,555 miles of pipeline across Alaska, the Yukon Territory, Northwest Territories, British Columbia, Alberta, and across the southeast corner of Saskatchewan. Included in this is 275 miles of extension and looping of the Westcoast pipeline to transport Mackenzie Delta gas across British Columbia, which Westcoast has said it would build under either the Foothills or Arctic Gas proposals.

Main sections of the Foothills pipelines would be 42-inches in diameter, and at full design capacity, would be able to transport gas at a combined rate of 4.8 billion cubic feet per day.

Under the Arctic Gas proposal, total pipeline construction to move both Mackenzie Delta and Alaskan North Slope gas across Alaska, the Yukon Territory, Northwest Territories, Alberta and across the southeast corner of Saskatchewan, is 2,395 miles. Including the 275 miles for Westcoast Transmission that would be common to either proposal, the total would be 2,670 miles.

The main section of the Arctic Gas pipeline would be 48-inches in diameter, and at full design capacity would be able to transport gas at a rate of 4.5 billion cubic feet per day.

Thus, to transport essentially the same volume of gas to the same markets, the Foothills proposal would involve the construction of 1,885, or 44 percent, more miles of pipeline than Arctic Gas.

Arctic Gas believes that the additional and unnecessary 1,885 miles of pipeline involved in the Foothills proposals would increase the cost of transporting the gas by several hundreds of millions of dollars every year.

Another proposal, by El Paso Natural Gas Co., would transport only Alaskan North Slope gas, by pipeline across Alaska, and by tanker, in liquefied form, down the west coast to California. The El Paso project would mean that the movement of Mackenzie Delta gas would require a second transportation system, again adding hundreds of millions of dollars per year to the annual cost of transportation.

Canadian Arctic Gas Pipeline Limited
November 1976

How much will the Arctic Gas pipeline cost and who will own it?

POLAR
PAM
4270

POLARPAM

Including anticipated escalation in costs from current levels, the Canadian Arctic Gas pipeline will cost an estimated $7.4 billion to build to its initial capacity of 3.25 billion cubic feet of gas per day.

After allowing for such factors as funds generated from revenues during initial transportation of gas from the Mackenzie Delta, the amount of capital which must be raised from investors is $7 billion.

Three-quarters of this, or $5.25 billion, would be borrowed, in the form of first mortgage bonds, supplier credits, and other forms of debt capital.

One-quarter, or $1.75 billion, will be equity, or ownership capital.

At least half the equity, or $875 million, will be sought from Canadian-owned firms and investors.

Canadian-owned firms which are participants in Arctic Gas have already agreed to invest a basic $450 million in equity, conditional upon government approval of the project and other factors.

Additional equity is anticipated from other Canadian firms, and a public offering will also be made to Canadian investors.

In this way, Canadians will have the opportunity of acquiring majority ownership and investment control of the Canadian Arctic Gas pipeline — an objective we are confident can be achieved.

The estimated $7.4 billion cost of the pipeline includes anticipated escalation of $1.53 billion above the 1976 costs. The plan of financing provides for a further $1.75 billion in standby funds which would be available in the event that costs exceed anticipated levels. Thus, a total of nearly $3.3 billion would be provided for anticipated and unanticipated cost escalation.

The funds available to build the pipeline — including basic financing ($7.0 billion) and commitments to meet possible cost over-runs ($1.75 billion) — would amount to almost $8.8 billion.

The sponsoring Arctic Gas firms have already made expenditures of $130 million in engineering, environmental, economic and regional social impact studies related to the proposed pipeline, and in its regulatory review. The sponsors include Canadian-owned firms comprising the major portion of Canada's natural gas transmission and distribution industry, serving Canadian gas users in Manitoba, Ontario and Quebec.

Canadian Arctic Gas Pipeline Limited
November 1976

POLAR
PAM
4270

POLARPAM

What is the purpose of the proposed Arctic Gas Pipeline?

POLAR
PAM
4270

POLARPAM

The purpose of the Arctic Gas pipeline is to transport Canadian natural gas from the Mackenzie River Delta to Canadian markets, and U.S. gas from the North Slope of Alaska to American markets, at the earliest opportunity and the lowest cost.

One transportaton system to move natural gas from both these arctic sources will save billions of dollars in total capital investment, and hundreds of millions of dollars per year in the cost of transportation.

This combined delivery system would also result in much earlier delivery of Mackenzie Delta gas to Canadian consumers. A pipeline to transport only Delta gas could not be undertaken until some 16 to 18 trillion cubic feet of gas reserves had been discovered in the Delta-Beaufort Sea area. So far, only some seven trillion cubic feet of reserves have been discovered here.

The Arctic Gas pipeline can be undertaken now, because it would be backed by the combined reserves of both the Delta-Beaufort Sea, and the North Slope of Alaska, which total more than 30 trillion cubic feet.

Without the assurance of an early transportation system, which the Arctic Gas pipeline can provide, continued exploration in the Delta-Beaufort Sea area would be inhibited. Under these conditions, it is uncertain how long it might take to find adequate reserves to support construction of a pipeline to transport only Delta gas.

The Arctic Gas system would include 200 miles of pipeline across the northeast corner of Alaska to be owned and operated by Alaskan Arctic Gas Pipeline Company, and 2,200 miles across northern and western Canada to be owned and operated by Canadian Arctic Gas Pipeline Limited.

Arctic Gas would connect with other pipelines for final delivery of the Delta gas to Canadian consumers from Vancouver to Quebec, and delivery of the Alaskan gas to U.S. markets from the Pacific to the Atlantic seaboards.

At full compressor horsepower, the pipeline would be able to move 4.5 billion cubic feet of gas per day. Additional delivery capacity could be provided by incremental looping (installing short sections of additional pipeline with added compression) as additional gas reserves are developed.

Canadian Arctic Gas Pipeline Limited
November 1976

How will the Arctic Gas Pipeline benefit Canada?

POLAR
PAM
4270

POLARPAM

Natural gas from the Mackenzie Delta, transported by the proposed Arctic Gas pipeline, can provide a larger supply of new energy for Canadian users at less cost and in less time than by any other presently available means.

It would also generate important revenues for the Canadian economy from the charges for transporting U.S. gas from Alaska across northern and western Canada.

These advantages would result in:

- Increased security of energy supply, assuring the long-term needs of Canada's eight million users of natural gas, and reducing the vulnerability to supply interruptions posed by the rapid growth of imported oil from OPEC nations.
- Savings of billions of dollars as compared with the real costs of available, alternative forms of energy.
- A large and urgently required contribution to Canada's trade position.
- A vital incentive for the continued search for needed additional supplies of natural gas and petroleum in the western arctic.
- Provision of economic activity which could help contribute to the alleviation of severe unemployment and socio-economic problems in the Northwest Territories.

The need for more gas

Supplies of natural gas from western Canada, principally Alberta, are now sufficient to meet the critical needs of Canadian users of this premium fuel.

But new sources to supplement western gas production are required to ensure that this demand will continue to be satisfied

In British Columbia, declining production is already inadequate to meet export sales contracts, and supplies to meet potential demand growth in B.C. are not available.

The rest of Canada relies for its gas supplies on Alberta, where existing gas reserves are being depleted at nearly twice the rate that new reserves are being discovered. More than 70 percent of the gas believed to exist in Alberta has already been found and the remaining potential is increasingly difficult to discover. It now requires the drilling of nine times as many exploratory wells in Alberta to discover as much new gas as each exploratory well discovered during the 1950's and 1960's. As a result, the amount of new gas discovered in Alberta during the five-year period to 1976 amounted to less than six trillion cubic feet, compared with production of 9.6 trillion cubic feet, according to estimates of the Alberta Energy Resources Conservation Board.

Thus the need for new sources of gas supply is clear. Studies by Arctic Gas suggest that western production will not be able to maintain the present share of the energy market served by natural gas beyond 1980. In 1975, the National Energy Board calculated that, even if all exports were eliminated, shortages in gas supplies for Canadian users would start to occur between 1983 and 1986.

Increasing shortages in other domestic energy supplies, however, mean that new sources of natural gas are needed not only to maintain the 25 percent of the Canadian energy market served by this fuel, but if possible, to increase it.

For example, recent cut-backs in planned expansions of electric power generation could well increase requirements for other fuels, particularly natural gas for space heating and home appliances.

Net oil imports in 1976 amounted to a quarter of a million barrels every day, or 15 percent of Canada's petroleum needs. By 1985, even with reduced demand growth, Canada is expected to rely on net oil imports for nearly half of its petroleum requirements.

Net oil imports of this magnitude "will decrease the degree of control we have over our future economic and social progress," according to the Federal Government's 1976 Energy Strategy for Canada. Energy Minister Alastair Gillespie said that "This prospect carries with it economic and political risks which the Government of Canada views with concern."

The volume of natural gas from the Mackenzie Delta which Arctic Gas projects could be available by 1985 is equal to a volume of 400,000 barrels per day of imported oil.

No other source of domestic energy offers the same potential to reduce the effects of imported oil supplies and enhance the security of energy for Canadian users within the same time frame.

$20 billion cost savings

Not only will Mackenzie Delta gas increase the security of Canada's energy supplies, it will also significantly reduce the economic cost.

The volume of Delta gas that Arctic Gas projects its pipeline will deliver to Canadian users during a 22-year period amounts to 14 trillion cubic feet. The only presently foreseen alternative to this domestic source of energy is an equivalent volume of imported oil. This Delta gas supply would save the Canadian economy an estimated minimum of $20 billion in labor, material and resource costs, as compared with the cost of an extensive volume of imported oil.

Improve Canada's foreign trade

Canada's trade position could be improved by as much as $2.4 billion per year by the Arctic Gas pipeline.

An initial flow of 1.25 billion cubic feet per day of Delta gas would displace nearly 240,000 barrels per day of imported oil. At the present laid-down price in Canada of $13.50 per barrel for imported oil, this would amount to $1.5 billion per year.

At a projected volume of 2.25 bcf/d, Delta gas would displace 400,000 barrels per day of imported oil, worth $2 billion per year.

In addition, charges for the transportation of Alaskan north slope gas across Canada through the Arctic Gas pipeline would generate $400 million per year net foreign exchange earnings for Canada.

The need for a major improvement in Canada's foreign trade position is widely recognized.

The deficit in foreign trade and other current payments is now running at a record rate of some $5 billion per year. By 1985, the deficit in petroleum trade alone is projected in the order of $5 billion per year.

This situation creates "some very serious, basic economic problems," Alberta Premier Peter Lougheed told the Alberta Legislature on October 13. ". . . in a few years, Canada faces the prospect of a balance of payments crisis somewhat along the lines experienced by the United Kingdom in recent years." The Premier pointed to "a major challenge to offset this balance of payments crisis, and I don't think 'crisis' is too strong a word. Devaluation of the Canadian dollar has serious implications."

Stimulate search for more energy

Production of natural gas and oil from the western provinces has amounted to some 80 percent of the energy used in Canada.

But faced with declining oil and gas production from the western provinces, Canada must either develop new sources of domestic energy, or turn increasingly to imported petroleum.

For at least the next few decades, the best prospect of offsetting the decline in western oil and gas supplies with new sources of domestic energy lies in the discovery and development of the large potential oil and gas resources of Canada's arctic and offshore frontier exploration regions.

One of the most important frontier exploration regions is the Mackenzie Delta-Beaufort Sea basin, where exploration to date has resulted in the discovery of some seven trillion cubic feet of gas.

Only a small fraction of the possible reserves of this region has so far been found. Within the area embraced by present exploratory activity, one exploratory well has been drilled for about every 300 square miles, compared with one well for every 11 square miles in Alberta.

The offshore portion, where exploration has just started, is expected by geologists to contain the largest portion of the Delta-Beaufort potential. The sedimentary rocks offshore are thicker, and Dome Petroleum estimates that there are approximately 160 major structural features offshore indicated by seismic data and waiting to be explored.

Sustained exploration over a prolonged period is required to discover and develop the Delta-Beaufort potential, and help provide Canada's energy needs.

The Arctic Gas pipeline would provide the assurance of economic transportation of gas that is essential to continued, aggressive exploration for more reserves.

Economic benefits for the north

Economic activities and revenues associated with the Arctic Gas pipeline would provide important regional benefits in the Northwest Territories. It could help reduce high rates of unemployment; increase the range of choice and opportunities for northern residents; help increase economic self-reliance and self-determination; and contribute to urgent social objectives.

The economy of the Northwest Territories is heavily reliant on Federal Government expenditures, which amounted to $7,800 for every NWT resident in the 1976 fiscal year. Despite this, unemployment exceeds 40 percent in many northern communities; the labor force is growing at an annual rate of six percent; and welfare expenditures in 1973, at $1,800 per capita, were nine times the national average.

Economic activity associated with the pipeline "appears to be the only immediately foreseeable means of supplying the quantity of employment and entrepreneurial opportunities needed if the Territories are to continue on their hoped-for course of economic, social and political development," David Searle, Speaker of the NWT Legislative Assembly, told the National Energy Board at public hearings in Yellowknife.

Canadian Arctic Gas Pipeline Limited
November, 1976

POLAR
PAM
4270

POLARPAM

What about the environment?

There has never been an industrial project anywhere, which has incorporated as much research and planning for environmental protection as the proposed Arctic Gas pipeline.

The pipeline will incorporate the results of this work to provide the highest possible degree of protection to the environment. Throughout the Yukon and Northwest Territories, the pipeline would be fully-buried; the surface would be revegetated; and the gas in the pipe would be chilled to protect the perma-frost thereby also protecting the pipeline itself.

Just one phase of this research and planning — involving studies of northern wildlife resources and vegetation — has cost more than $16 million, employing up to 50 professional field researchers during a span of more than four years. This in itself has been the most comprehensive program of environmental study conducted by industry.

An additional $30 million — spent on engineering design, route and terrain studies, and pilot pipelines testing the movement of refrigerated gas — relates as much to environmental protection as to design and operating safety and efficiency.

Arctic Gas undertook this extensive environmental study not only because of concern for our environment, but for two additional reasons:

1) A considerable portion of the work (on avoidance of perma-frost degradation, for example) is as essential for the physical protection of the pipeline as it is for the protection of the environment. And the stability of the pipeline involves not only the safety of a planned investment of several billions of dollars, but more importantly the security of a significant portion of Canada's energy supplies.

2) Arctic Gas had an early and full appreciation that a project of the nature it proposes can anticipate timely approvals only if its planning complies with today's demands of society for the full practicable measure of environmental protection.

The Arctic Gas studies have provided not only the basis for its project, but as an ancillary benefit, have added greatly to Canada's knowledge of its vast northern wilderness and its wildlife resources.

The need to promptly develop large new supplies to help offset serious energy shortages predicted to occur by about the end of this decade is one of the most urgent national concerns now facing Canada. In responding to this, the Arctic Gas pipeline will have less environmental impact than the development required to secure any other equal volume of new domestic energy supplies.

Canadian Arctic Gas Pipeline Limited
November 1976